POLLUTION

• challenges
• solutions
Indoor air pollution is ranked as one of the world’s greatest public health risks. (Wolverton, 1997)
It has been estimated that globally 14 times as many deaths occur from poor indoor air quality compared with outdoor air pollution.

(Brennan and Withgott, 2005)
BEING INDOORS IS MORE DANGEROUS THAN OUTDOORS
DOING LESS
BAD IS NOT
GOOD ENOUGH
Health and Wellbeing increasingly recognised as a relevant factor for investors.

March 2016 saw the announcement that the GRESB global benchmark for real-estate portfolios will develop a health & wellbeing module for future surveys.

Source: https://www.gresb.com/gresb-launches-health-well-being-module-for-the-real-estate-industry
BUILDINGS WILL NEED TO DO MORE GOOD
algae bio-fuel cells function as part of the building's energy production system

urban food production responds to local demand

urban agriculture systems integrated with water collection and greywater systems
SOLUTIONS
THE METAPHOR OF THE FLOWER

ROOTED IN PLACE AND YET:
Harvests all energy + water
Is adapted to climate and site
Operates pollution free
Is comprised of integrated systems
Is beautiful
BEAUTY & INSPIRATION
A Living Building tells a story.

INDOOR QUALITY
Maximize health, minimize impact.

MATERIALS
Safe, healthy and responsible for all species.

WATER
A Living Building is water independent.

SITE
Humanity has co-opted enough land; it is time to draw boundaries and declare it enough.

ENERGY
A living building relies solely on current solar income.
- **Mind**: Support mental and emotional health, knowledge and awareness
- **Comfort**: Acoustic, thermal, olfactory and ergonomic environments
- **Fitness**: Accommodate exercise and movement in daily routines
- **Light**: Circadian rhythm, window performance, and light quality
- **Nourishment**: Healthy options, behavioural cues, and greater information
- **Water**: Filtration and treatment, as well as strategic placement
- **Air**: Removal of airborne contaminants, prevention, and purification
AirRenew™ Gypsum Board permanently absorbs the VOCs**.

1. Captures VOCs**
2. Converts VOCs** into inert compounds
3. Inert compounds remain within gypsum board

VOCs** come into contact with the board by typical airflow.
Toxic Red List

The Omega Center for Sustainable Living
does not contain any of the following
Living Building Challenge™ Red List materials or chemicals.

Cadmium • Chlorinated Polyethylene and Chlorosulfonated Polyethylene
Chlorofluorocarbons (CFCs) • Chloroprene (Neoprene) • Formaldehyde (added)
Halogenated Flame Retardants • Hydrochlorofluorocarbons (HCFCs)
Lead • Mercury • Petrochemical Fertilizers and Pesticides
Phthalates • Polyvinyl Chloride (PVC)
Bamboo Palm
Removes formaldehyde, Acts as a natural humidifier.

Sansevieria
It absorbs nitrogen oxides and formaldehyde.

Areca Palm
One of the best air purifying plants for general air cleanliness.

Spathiphyllum
Remove mold spores, formaldehyde, and trichloroethylene.

Spider Plant
Removes carbon monoxide and other toxins or impurities. one of three plants NASA deems best at removing formaldehyde from the air.

Golden Pothos
Most effective indoor Purifiers. Removes Formaldehyde, xylene, toluene, benzene, Carbon monoxide and more.
WELL RETAIL PILOT PROJECTS

HAWORTH SHOWROOM, SHANGHAI

CONSTANT MONITORING OF AIR

On-going measurement & testing of indoor air quality, ensuring clean & breathable air.
FUTURE
VR + wearables

rapid prototyping
de-risking design
co-design
THE SCIENCE BEHIND A HEALTHIER INDOOR WORLD.

The Well Living Lab is setting out to change how people live, work and play indoors.

We spend over 90% of our time indoors.
DIGITAL BUILDINGS
REAL-TIME ASSET HEALTH
Ask Arup.
THANK YOU